

## Ambassador Zone Tour NGSS Alignment: K-12th

- Students will learn how at least 3 of non-releasable Wildlife Ambassador Animals came to WildCare and why they cannot be released.
- Students will learn about physical and behavioral adaptations of the ambassador animals that help them to survive in different habitats.
- Students will learn how human actions can negatively impact the environment and things that they can do to help.

Grade	NGSS Disciplinary Core Idea	Examples
<b>K</b>	<p><b>LS1.C: Organization for Matter and Energy Flow in Organisms</b> - All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow. (K-LS1-1)</p> <p><b>ESS2.E: Biogeology</b> - Plants and animals can change their environment. (K-ESS2-2)</p> <p><b>ESS3.C: Human Impacts on Earth Systems</b> - Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (secondary to K-ESS2-2)</p> <p><b>ESS3.A: Natural Resources</b> - Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. (K-ESS3-1)</p>	<p><b>LS1.C:</b> Students will learn how animals have diverse diets. While a Desert Tortoise is an herbivore feeding on desert plants, the Brown Pelicans dive into deep waters for fish.</p> <p><b>ESS2.E:</b> Students will learn how California Desert Tortoises will dig burrows to live in and keep them safe from extreme temperatures. Desert Tortoise burrows provide these benefits to other animals too.</p> <p><b>ESS3.C:</b> Students will learn how WildCare's Brown Pelican was injured by fishing line. Students will learn that cleaning up fishing line and other trash can protect wildlife.</p> <p><b>ESS3.A:</b> Students will learn the Northern Spotted Owl needs old growth forests as their preferred habitat. Humans use wood as a resource and have cut down a majority of the Northern Spotted Owl's habitat.</p>

1st	<p><b>LS1.A: Structure and Function</b> - All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air.</p> <p><b>LS1.B: Growth and Development of Organisms</b> - Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. (1-LS1-1)</p> <p><b>LS1.D: Information Processing</b> - Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive.</p> <p><b>LS3.A: Inheritance of Traits</b> - Young animals are very much, but not exactly, like their parents. Plants also are very much, but not exactly, like their parents. (1- LS3-1)</p>	<p><b>LS1.A:</b> Students will learn how the Acorn Woodpecker’s zygodactyl feet—two toes facing forward and two facing backward—help it grip tree bark while pecking for insects and storing acorns.</p> <p><b>LS1.B:</b> Students will learn how a mother Virginia Opossum carries her babies on her back and guides them in finding food, water, and shelter—behaviors that help her offspring survive on their own.</p> <p><b>LS1.D:</b> Students will learn that owl brains are largely dedicated to processing sound, and their unique ear placement—one higher than the other—allows them to pinpoint the exact location of prey using hearing alone.</p> <p><b>LS3.A:</b> Students will observe that some animals, like Desert Tortoises, look very similar to their parents from a young age—showing gradual growth but few drastic changes in appearance.</p>
2nd	<p><b>LS4.D: Biodiversity and Humans</b> - There are many different kinds of living things in any area, and they exist in different places on land and in water. (2-LS4-1)</p>	<p><b>LS4.D:</b> Students will learn that some animals like the Northern Spotted Owl prefer old growth forest habitats. Other animals like Brown Pelicans migrate across large stretches of oceans, bays, and estuaries.</p>
3rd	<p><b>LS1.B: Growth and Development of Organisms</b> - Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. (3-LS1-1)</p> <p><b>LS2.C: Ecosystem Dynamics, Functioning, and Resilience</b> - When the environment changes in ways that</p>	<p><b>LS1B:</b> Students will learn how marsupials like the Virginia Opossum have a unique life cycle involving very short gestation, time in their mother’s pouch, and riding around on their mother’s back.</p> <p><b>LS2.C:</b> Students will learn how drought, direct human interference, and altered landscapes have</p>

	<p>affect a place’s physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die. (secondary to 3-LS4-4)</p> <p><b>LS4.B: Natural Selection</b> - Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing. (3-LS4-2)</p> <p><b>LS4.C: Adaptation</b> - For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)</p> <p><b>LS4.D: Biodiversity and Humans</b> - Populations live in a variety of habitats, and change in those habitats affects the organisms living there. (3-LS4-4)</p>	<p><i>contributed to the decline of the California Desert Tortoise, while these changes have led to the proliferation of the Common Raven.</i></p> <p><b>LS4.B:</b> <i>Students will explore how Acorn Woodpeckers engage in cooperative breeding behaviors, such as sharing nests and parenting duties, which enhance the survival of their young.</i></p> <p><b>LS4.C:</b> <i>Students will learn how the Virginia Opossum is adapted to thrive in many different habitats. The Northern Spotted Owl relies on old-growth forests, it is less adaptable and more vulnerable to habitat loss.</i></p> <p><b>LS4.D:</b> <i>Students will learn about the negative impact that building roads in the desert has had on the California Desert Tortoise.</i></p>
4th	<p><b>LS1.A: Structure and Function</b> - Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)</p> <p><b>LS1.D: Information Processing</b> - Different sense receptors are specialized for particular kinds of information, which may be then processed by the animal’s brain. Animals are able to use their perceptions and memories to guide their actions. (4-LS1-2)</p>	<p><b>LS1.A:</b> <i>Students will learn that Brown Pelicans have specialized air sacs under their skin that function like airbags, cushioning their dives.</i></p> <p><b>LS1.D:</b> <i>Students will learn how owls have asymmetrical ears—one positioned higher than the other—which allows them to detect sounds coming from above and below.</i></p>

<p>5th</p>	<p><b>PS3.D: Energy in Chemical Processes and Everyday Life</b>  - The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). (5-PS3-1)</p> <p><b>LS1.C: Organization for Matter and Energy Flow in Organisms</b> - Food provides animals with the materials they need for body repair and growth and the energy they need to maintain body warmth and for motion. (secondary to 5-PS3-1)</p> <p><b>LS2.A: Interdependent Relationships in Ecosystems</b> - The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.”  Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)</p> <p><b>ESS3.C: Human Impacts on Earth Systems</b> - Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth’s resources and environments. (5-ESS3-1)</p>	<p><i><b>PS3.D:</b> Students will learn how the energy a Desert Tortoise uses to walk, grow, and dig burrows originates from the sun because they are herbivores.</i></p> <p><i><b>LS1.C:</b> Students will meet Marla, a Western Pond Turtle, that has a porous and fragile shell because he was taken from the wild and kept without proper care or food.</i></p> <p><i><b>LS2.A:</b> Students will learn how the introduction of the Red-Eared Slider has increased competition for food for the native Western Pond Turtle.</i></p> <p><i><b>ESS3.C:</b> Students will learn how Brown Pelican nearly went extinct due to human’s industrial use of pesticides (DDT) but were saved by the banning of DDT.</i></p>
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<p>6-8th</p>	<p><b>LS1.B: Growth and Development of Organisms</b> - Animals engage in characteristic behaviors that increase the odds of reproduction.</p> <p><b>LS4.C: Adaptation</b> - Adaptation by natural selection acting over generations is one important process by which species change over time in response to changes in environmental conditions. Traits that support successful survival and reproduction in the new environment become more common; those that do not become less common. Thus, the distribution of traits in a population changes. (MS-LS4-6)</p> <p><b>ESS3.C: Human Impacts on Earth Systems</b> - Human activities have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species. But changes to Earth's environments can have different impacts (negative and positive) for different living things. (MS-ESS3-3) Typically as human populations and per-capita consumption of natural resources increase, so do the negative impacts on Earth unless the activities and technologies involved are engineered otherwise. (MS-ESS3-3),(MS-ESS3-4)</p> <p><b>LS2.A: Interdependent Relationships in Ecosystems</b> - Organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors. (MS-LS2-1) In any ecosystem, organisms and populations with similar requirements for food, water, oxygen, or other resources may compete with each other for limited resources, access to which consequently constrains their growth and reproduction. (MS-LS2-1) Growth of organisms and population increases are limited by access to resources. (MS-LS2-1)</p> <p><b>LS2.C: Ecosystem Dynamics, Functioning, and Resilience</b> - Ecosystems are dynamic in nature; their characteristics can vary over time. Disruptions to any physical or biological component of an ecosystem can lead to shifts in all its populations. (MS-LS2-4)</p>	<p><i><b>LS1.B:</b> Students will learn how individual Acorn Woodpeckers with brighter red head feathers are often more successful in finding mates. The brighter coloration signals good health and proper nutrition, traits that suggest the bird will be a strong mate and parent.</i></p> <p><i><b>LS4.C:</b> Students will learn that Desert Tortoises are adapted to have a large bladder to survive the dry conditions of the desert.</i></p> <p><i><b>ESS3.C:</b> Students will learn about how deforestation has led to the loss of habitat for the Northern Spotted Owl, contributing to its endangered status.</i></p> <p><i><b>LS2.A:</b> Students will learn about the competitive relationship between the Northern Spotted Owl and the Barred Owl. Students will learn that this competition, in combination with habitat destruction, has led to the decline of the Spotted Owl populations.</i></p> <p><i><b>LS2.C:</b> Students will learn how the introduction of invasive species, like the Red-Eared Slider, can negatively impact the organisms already living in that ecosystem and even cause population declines in other species.</i></p>
<p>9-12th</p>	<p><b>LS2.A: Interdependent Relationships in Ecosystems</b> - Plants or algae form the lowest level of the food web. At each link upward in a food web, only a small fraction of the matter consumed at the lower</p>	<p><i><b>LS2.A:</b> Students will learn that Brown Pelicans may need to eat as much as 4 pounds of food each day because their use of energy for</i></p>

level is transferred upward, to produce growth and release energy in cellular respiration at the higher level. Given this inefficiency, there are generally fewer organisms at higher levels of a food web. Some matter reacts to release energy for life functions, some matter is stored in newly made structures, and much is discarded. The chemical elements that make up the molecules of organisms pass through food webs and into and out of the atmosphere and soil, and they are combined and recombined in different ways. At each link in an ecosystem, matter and energy are conserved. (HS-LS2-4)

**LS2.C: Ecosystem Dynamics, Functioning, and Resilience -**

Moreover, anthropogenic changes (induced by human activity) in the environment—including habitat destruction, pollution, introduction of invasive species, overexploitation, and climate change—can disrupt an ecosystem and threaten the survival of some species. (HS-LS2-7)

**LS4.C: Adaptation -** Changes in the physical environment, whether naturally occurring or human induced, have thus contributed to the expansion of some species, the emergence of new distinct species as populations diverge under different conditions, and the decline—and sometimes the extinction—of some species. (HS-LS4-5),(HS-LS4-6)  
Species become extinct because they can no longer survive and reproduce in their altered environment. If members cannot adjust to change that is too fast or drastic, the opportunity for the species' evolution is lost. (HS-LS4-5)

**LS4.D: Biodiversity and Humans -** Humans depend on the living world for the resources and other benefits provided by biodiversity. But human activity is also having adverse impacts on biodiversity through overpopulation, overexploitation, habitat destruction, pollution, introduction of invasive species, and climate change. Thus sustaining biodiversity so that ecosystem functioning and productivity are maintained is essential to supporting and enhancing life on Earth. Sustaining biodiversity also aids humanity by preserving landscapes of recreational or inspirational value. (HS-LS4-6) (HS-LS2-7)

**ESS3.C: Human Impacts on Earth Systems -** The sustainability of human societies and the biodiversity that supports them requires responsible management of natural resources. (HS-ESS3-4) Scientists and engineers can make major contributions by developing technologies that produce less pollution and waste and that preclude ecosystem degradation. (HS-ESS3-4)

*flying and diving is very high.*

**LS2.C:** *Students will learn how humans moving into the desert brought the resources necessary for Ravens to thrive in a desert environment. Now, Ravens threaten the California Desert Tortoise by sharply increasing the infant mortality rate of the Tortoises.*

**LS4C:** *Students will learn how deforestation and competition has impacted the Northern Spotted Owl population. Their population is severely endangered and threatened with extinction in this altered environment.*

**LS4.D:** *Students will learn that the Western Pond turtle is threatened by two different invasive species introduced by humans, the Red-Eared Slider and the American Bullfrog.*

**ESS3.C:** *Students will learn how deforestation endangers the population of Spotted Owls. The remaining old growth forests are an important resource for wildlife and should be managed for ecosystem health. Regulations like the no roads rule for logging help to protect forests from damage and preserve natural resources.*